AMG -10 Meeting Summary
6-7 March 1996

The tenth meeting of the DMSO Architecture Management Group (AMG) was held on 6-7 March 1996 at the Institute for Defense Analyses, Alexandria, VA. In attendance were the 16 AMG members, plus additional representatives of the Technical Support Team and other personnel.

1. Opening Remarks
CAPT Jim Hollenbach (DMSO) welcomed everyone, summarized the goals and agenda for the meeting. His briefing charts are available on the DMSO web pages.

2. Meeting Agenda and TSTCore Update
Dr. Judith Dahmann (DMSO) reviewed action items from AMG-9 and previous meetings. She described the progress of the TST, including the OMT Working Group, the IF Spec Working Group, HLA Testing, and RTI Support. Briefing charts are available on the DMSO Web page.

3. FOM Overview
Bob Lutz (Johns Hopkins Univ. APL) gave an overview of the Federation Object Model (FOM) which served as an overview for the HLA Proto-federation's "FOM Fair" to follow. Included a definition of the FOM, and the tables of which it is comprised. The FOM is a specification of the exchange of public data among the participants in an HLA federation. The briefing charts for the individual Proto-federation briefs which follow are posted on the DMSO Web page.

4. Proto-federation Briefings
Each proto-federation was asked to provide a review of their FOM, including recommendations for OMT extensions. A "FOM Fair" was held during lunch and breaks, during which full copies of the FOMs were available for review and discussion with proto-federation team members. Details are as follows:

Platform Proto-federation (PPF) FOM
Susan Harkrider (STRICOM) described the status of the FOM for the PPF.
- Each PPF federate produced a draft simulation Object Model (SOM), and these were used to develop the PPF FOM.
- The PPF FOM was also derived from their federation scenario; knowing the scenario helped identify the important objects, attributes, and interactions.
- FOM is represented in a Microsoft Excel spreadsheet.

Joint Training Proto-federation (JTFp) FOM
Bill Waite (AEgis Research) described the FOM developed by the JTFp.
- Like the PPF, used Microsoft Excel to represent FOM tabular data. In addition, they used Paradigm Plus to capture supplemental interactions.
- The JTFp feel that the information found in the FOM's association and composition tables are of minimal use.
- Found that multiple inheritance is useful, but not easily represented in the FOM.
- AEgis is developing a FOM development tool for the JTFp which will automate the transfer of Paradigm Plus data into the OMT format.

Analysis Proto-federation FOM

Denis Clements (GRCI) described the Analysis Proto-federation's FOM.
- Analysis Proto-federation FOM developed in Paradigm Plus, and then transferred to Microsoft Excel.
- The Analysis Proto-federation's federates are still being designed based on the FOM and object-oriented analysis.

Engineering Proto-federation FOM

Dana Paterson (ACETEF) described the Engineering Proto-federation's FOM. He stated that all the Engineering Proto-federation's federates are legacy simulations.
- The Engineering Proto-federation's FOM is embodied in their Interface Control Document.
- In building their FOM, the Engineering Proto-federation devised a number of useful "FOM rules" concerning federation common functionality. They noted that there is currently no place for information of this type in the existing FOM template.

Joint Precision Strike Demonstration (JPSD) FOM

Rich Briggs (VTC) presented the status of the JPSD experiment's FOM.
- JPSD's FOM development process was a translation of the JPSD Interface Requirement Spec to the OMT format.
- FOM is kept as a Microsoft Excel spreadsheet. Manual development of FOMs was characterized as a very tedious process.

FOM Development Tools

Dr. Judith Dahmann stated that, in recognition of the value of automation in support of the FOM development process, two "FOM Development Workstation" prototypes are under development with DMSO funding. These prototypes build upon the proto-federations' experience building FOMs manually. Target is to have these tools available by late summer for demonstration.

5. RTI v0.2 Release

Jim Calvin (MIT/Lincoln Labs) and Dr. Richard Weatherly (MITRE) described the newly-released version 0.2 of the RTI software. Their briefing charts are available on the DMSO Web page.
- To support the realtime communication needs of the RTI, version 0.2 of the RTI augments the Orbix CORBA environment with software to support multicast. The RTI's local distribution manager, which controls RTI-to-federate communications, uses a custom interface to multicast communications, rather than the communications software supplied by Orbix.
- The RTI v0.2 is being released with a management tool. This tool is separate from the test federate and can be implemented anywhere in the HLA federation.
- RTI v0.2 requires an RTI Initialization Data file.
- Jim Calvin asked for feedback from each AMG member regarding the programming model used by each federate (process/thread structure, POSIX model vs. Platform Specific model). This was added as a ninth item on the draft profile for capturing experience in adapting federates to the HLA.

6. HLA Rules

Dr. Judith Dahmann presented the reorganized set of HLA rules.
- This version of the rules re-organizes the rules by "Federate" and "federation" according to their underlying technical principles.
- The rules simply call for the existence of a SOM. The extent of the contents of the SOM is a policy issue, not an architectural one.

- DMSO will incorporate recommended rewording of rules, then distribute to the AMG community.
- The next step is to define HLA compliance.
- The AMG accepted the rules (as changed) for inclusion in the HLA definition as version 0.1. Briefing charts are posted to the DMSO Web page.

7. HLA Interface Specification Release

Jack Kramer (IDA) discussed the status of the HLA Interface Specification**.**
- The major changes for IF Spec v0.4 are in data filtering and Time Management.
- IF Spec v0.5 to be released by the AMG on 13 June 1996 (AMG-12). Will include a Federation Management section, resolution of the "asynchronous interface" issue, and consistency with OMT, Time Management, filtering, and other DMSO documents.
- Work on IF Spec v1.0 to begin 13 June. Will be released by the AMG on 23 Aug at AMG-14.
- The AMG unanimously approved IF Spec v0.4.

8. HLA/DIS Transition Plan

CAPT Jim Hollenbach (DMSO) and Dr. Duncan Miller (MIT/Lincoln Labs) led a discussion on the relationship between HLA and the next generation DIS.
- The HLA will be incorporated into next generation DIS (DIS++). This will allow broad interoperability, industry involvement, and involvement of best available technical talent.
- This will require the DIS workshop to adapt to the larger task of using the HLA to support the entire DoD Modeling and Simulation community, which is broader than the realtime platform level community now supported by DIS 2.x. The DIS steering committee has made a commitment to take on this larger task.
- The DIS Steering Committee has appointed a special group, the DIS Special Task Group, Vision Implementation Plan (STG VIP), to review the new requirements of the DIS Workshop and prepare a plan to address those requirements. This group is headed by Ms. Chris Bouwens.
- Dr. Duncan Miller re-iterated that the DIS Steering Committee desires to support the entire DoD Modeling and Simulation community through the proposed restructuring of the DIS workshop. The intent is that DIS++ will be the HLA, with appropriate supporting standards.
- The HLA is an acceleration of the process of achieving the vision of DIS. It is not a drastic re-direction.
- Ms. Chris Bouwens of the DIS STG VIP group solicited written questions and concerns about the transition, from the AMG community (chris_bouwens@cpqm.saic.com).

9. Modular Reconfigurable C^4I Interface (MRCI)

Col (sel) Mark Jefferson (DMSO) and Mark Cosby (SAIC) described the Modular Reconfigurable C^4I Interface.
- This program is an off-shoot of DMSO's C^4I to Simulation Workshop held in July 1996.
- As part of the program, four prototypes are being built, including STOW (DIS-HLA) and Joint Training Confederation (ALSP-HLA).
- Categories of MRCI functions: data transfer, information transfer, command and control transfer, and real world communication infrastructure emulation.
- The MRCI and its affiliated real-world C^4I system will collectively have an appropriate SOM, which will influence the selection/configuration of the common modules of the MRCI.
- PDR for the MRCI prototypes is 5 June 1996.

10. Meeting Wrap-up and Action Items

The following action items resulted from the discussions at AMG-10.

1) (AMGTECH) Provide input to DMSO (Ponikvar, Dahmann) on recommended revisions to HLA Annotated Briefing.

2) (DMSO, AMG) Revise rules, post to web and circulate to AMG for comment.

3) (DMSO, Ponikvar) Update HLA Management Plan by AMG-11.

4) (Loper) Incorporate column in state diagram tables referencing I/F Spec paragraph(s); include in next release of test procedures.

5a) (DMSO/TST) Append new item #9 to the draft profile, i.e., description of the programming model employed (process/thread structure, POSIX model vs platform specific model).

5b) (Federate Developers/AMG Members) Based on netnote request from DMSO and draft profile outline distributed at AMG-10 with above addition, complete profiles based on their experience to date and provide to DMSO (Ponikvar) by 1 April.

6) (DMSO, Ponikvar) Post schedule for HLA papers at DIS Workshop to DMSO Home Page.

7) (TSTCore) Presentation on filtering plans to be made at AMG-11.

8) (AMG) Input on DIS --> HLA transition to Christina Bouwens (chairperson of Special Task Group on Vision Implementation Plan). E-mail to Chris_Bouwens@cpqm.saic.com, copy to CAPT Hollenbach at jwh@dmso.mil.